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GUM PRODUCERS CAN IMPROVE QUALITY OF GUM MARKETED AND GET HIGHER PRICES

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Abstract.—Acid waste from over-treatment and old, wornout iron cups have contributed significantly to the generally poor quality of gum marketed. Today producers are reluctant to purchase new cups and gutters and invest up to \$1.80 per tree for production when the market price for gum averages 14.5¢ per pound annually. Guidelines are given for improving the quality by eliminating the impurities and marketing cleaner gum. From 1969 to 1978, comparative data show that prices and demand for high-quality WW and WG grades of pine gum have increased, yet the percentage of the annual production in the top grades has not kept pace. Gum prices for this period increased 110 percent, while production decreased by 72 percent. Only 34 percent of the annual production graded WW or WG.

KEYWORDS: Gum grades, acid corrosion, old and new cups, market prices.

ACID DAMAGE OF IRON CUPS AND GUTTERS

It is estimated that 99.9 percent of the timber worked for gum production in the United States is treated with sulfuric acid to prolong gum flow. Workers have been using acid since 1947, but many have become careless and too hasty in applying it. Often, they apply twice the amount that is required for adequate treatment. The excess runs down the tree and concentrates on gutters and in the cups. The galvanized iron is eroded, exposing the base metal (iron); then iron contaminants infiltrate the gum and lower the grades of rosin processed (fig. 1). The ash content of rosin reflects the presence of contaminants, and only 1/10 of 1 percent iron ash is sufficient to lower the rosin grade from WW to KATE (Lawrence 1942).

New galvanized iron cups can be damaged sufficiently to affect grades the first year of use if acid waste is excessive (Clements 1961a). Fresh gum does not protect the new cup as many producers and workers believe (fig. 2). Iron gutters

and aprons are damaged to a similar degree by waste acid. When a gutter becomes clogged and the gum remains in contact with the iron for 4



Figure 1.—Each cup shown is 4 years old. Gum in cup at left is from tree treated with water solution of 2,4-D for 4 years. That on right is from tree treated with 50 percent solution of sulfuric acid for the same period. Both galvanized iron cups were new when study began. Iron contaminants from the cup have discolored and degraded the gum from the acid-treated tree.

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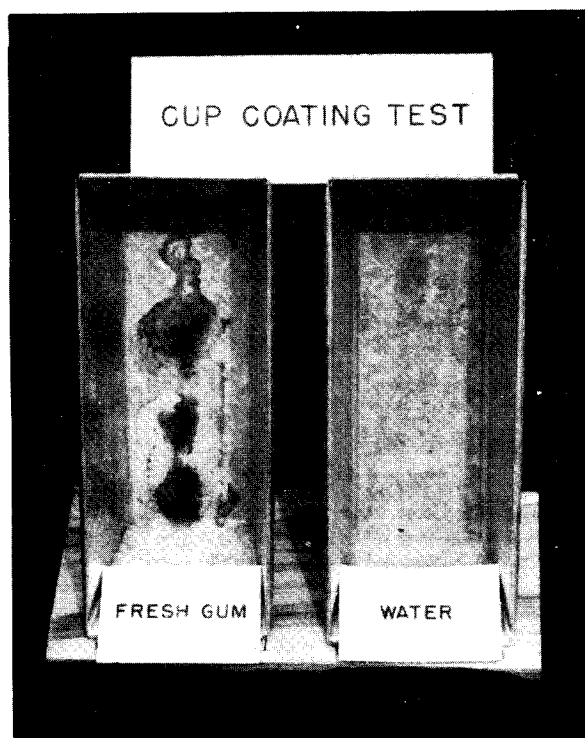


Figure 2.—Fresh gum will not protect the clean surface of a new galvanized iron cup. Acid will infiltrate the gum and erode the zinc coating, exposing the base metal (iron). Water will dilute the acid and spread the corrosive action, and the galvanized surface is not seriously damaged in any one spot.

weeks, the top surface of the gum will be glistening white but the gum that has been in contact with the iron gutter will be dark brown.

GUM PRICES

Although the demand and prices for quality gum rosins have increased appreciably in the past 10 years, the quality of the crude gum marketed has not improved. In 1968–69, WW rosin was selling for an annual average of \$11.39 per pound. The corresponding price in 1977–78 was \$28.91. The range in prices between WW and KATE rosins has increased sharply in 10 years, reflecting the demand for the top grades. In 1968–69, the difference in the prices for WW and KATE was only \$1.87. This difference increased to \$5.25 for 100 pounds of rosin in 1977–78 (USDA 1969–1978b).

Ten years ago the U.S. industry produced 277,648 barrels of crude gum, and 34.3 percent of the annual production graded WW or WG. The average price paid the gum farmer for all grades was \$30.01 per barrel. Production for the 1977–78 crop year was only 77,132 barrels of crude—a 72

percent drop in 10 years—and 33.7 percent of this total production graded WW or WG. The average price paid for a barrel of gum in 1977–78 was \$63.01, an increase of 110 percent (table 1).

Table 1.—Proportion of annual production of gum grading WW and WG, with average prices for crop years 1968–69, 1977–78

Month	Proportion grading WW and WG		Average price paid for gum	
	1968–69	1977–78	1968–69	1977–78
	<i>Percent</i>		<i>Dollars/barrel</i>	
April	27	25	29.20	62.41
May	42	34	29.90	64.26
June	67	61	31.30	66.61
July	71	73	31.70	68.46
August	69	75	31.85	68.46
September	71	76	32.20	68.65
October	46	41	30.90	64.83
November	9	9	28.60	61.10
December	3	4	28.50	60.84
January	1	5	28.25	58.85
February	2	0	28.40	54.47
March	4	1	29.35	56.19
Average	34.3	33.7	30.01	63.01

The highest average price for gum during 1977–78 (\$68.65) was recorded in September, when 76 percent of the gum marketed graded WW or WG. But a preponderance of low grades in December, January, February, and March reduced the average to \$63.01 (table 2). The range in average prices reflected the demand for quality gum: \$70.73 for WW and \$54.38 for KATE (table 2). Gum prices in 1977–78 were not particu-

Table 2.—Value of gum produced by grades for 1977–78 crop year

Gum grades	Proportion of annual production	Volume	Weighted average price	Value of production by grades
	<i>Percent</i>	<i>Barrels</i>	<i>Dollars/barrel</i>	<i>Dollars</i>
WW	20.2	15,581	70.73	1,102,044.13
WG	13.5	10,412	67.83	706,245.96
NANCY	23.7	18,280	64.05	1,170,834.00
MARY	33.1	25,532	58.08	1,482,898.56
KATE	9.5	7,327	54.38	398,442.26
Total	100.0	77,132	—	4,860,464.91
Average for crop year			63.01	

larly favorable to the producer, and many gum farmers abandoned their operations.

OLD VERSUS NEW CUPS

Another factor contributing to the low percentage of the annual production grading WW and WG is the number of old, rusty, acid-damaged cups currently in use. The average cup used in the woods to collect gum today is estimated to be over 10 years old.

In 1968-69, there were 1,595 producers working 15.3 million faces for gum production, and 145,000 new metal cups were sold for the crop year (USDA 1969-1978a). The record dropped to 654 producers and 4.5 million faces during 1977-78, when only 30,000 new cups were purchased. Economy-minded producers have been purchasing used cups from gum farmers who abandoned gum extraction as an unprofitable enterprise. Over the past 10 years, new cups (iron, aluminum, and plastic) were purchased at the rate of 164,000 per year to collect gum from over 80 million trees.²

Fluctuations in gum prices and unstable market conditions do not encourage producers to invest 65¢ per tree for new hardware and labor for installation before production begins. Producers who lease timber will have to invest about \$1.80 per tree for gum production by the end of the season. With gum at 14.5¢ per pound (\$63.01 per barrel), the producer will have to produce 12.4 pounds of gum per tree, or 27 barrels per 1,000 faces, just to break even. The average gum production for all producers and timber worked in 1977-78 was only 17 barrels per 1,000 faces (USDA 1969-1978a). Low gum prices and high cost of production do not support the purchase of new hardware for improving the quality of gum marketed.

IMPROVING GUM GRADES

Gum grades can be improved appreciably merely by deviating from the centuries-old ways of doing things in the woods, such as:

1. Gradually replacing old, wornout cups with plastic cups which are acid resistant and will not discolor the gum (Clements 1977).
2. Insisting that the chipper use a cup cover

to keep bark and chips out of the clean gum.

3. Punching and cleaning gutters and aprons on every dipping to prevent clogging and discoloring the gum caused by long contact with the iron gutter.

4. Punching and removing scrape as it forms on the face of the tree, when the scrape is "green," and has not crystallized; this will reduce the volume of low grades marketed in January and February, when 76 percent of the gum-scrape sold will grade MARY or KATE (Clements 1961b).

When possible, haul and sell the gum within a week following dipping to prevent grade loss. Acid-treated gum collected and "held" in the customary iron shipping barrel will discolor and drop 1 color grade in less than 30 days if acid waste has been excessive.

IMPROVING QUALITY AND PRICES

Gum rosin is classified by the selling and using industries as a specialty product to upgrade and stabilize the cheaper and inferior imports glutting the market (Thomason 1977). Gum processors and producers should promote and cultivate the superiority and versatility of gum rosins to create demand for the specialized product. At least 75 percent of the crude gum marketed annually should produce WW or WG rosins to stabilize the annual supply and to assure the consumer of a dependable market for top grades of gum rosins.

Gum flows from the pine tree clean and pure. Contamination and the loss in value are caused by a decrepit collection system and improper handling. If 75 percent of the annual production in 1977-78 had been graded WW or WG, the average annual price received for a barrel of gum (all grades) would have increased by \$3.64. Grades can be improved by eliminating the causes for contamination.

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